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# M-TRAC

*for rail safety*

NET TON CAPACITY  
12,524.5 TONS/RAILS  
278,320 POUNDS

## GUARDING THEIR LIVES



SUBMISSION TO  
HAROLD GILBERT, CHAIRMAN  
TORONTO AREA RAIL TRANSPORTATION  
OF DANGEROUS GOODS TASK FORCE

CONSTITUTED BY  
THE HON. DON MAZANKOWSKI, PC, MP, DEPUTY PRIME MINISTER  
AND RE-AFFIRMED BY  
THE HON. JOHN CROSBIE, PC, MP, MINISTER OF TRANSPORT

TORONTO, ONTARIO  
JANUARY 1988

M-TRAC is a non-profit Metrowide umbrella organization of ratepayers, residents and other groups who following the Mississauga train derailment joined forces to investigate and advocate rail safety in densely populated urban areas. Members are committed to initiate legislative and other changes necessary to ensure public safety particularly in the transport of dangerous commodities by rail.

We gratefully acknowledge contributions from individuals, groups, municipalities and the Province of Ontario whose support made this and other reports and submissions possible.

Photos, including cover by Robert W. Allen, show Osler Street and CPR North Toronto Subdivision crossing in the Junction Triangle Area.

# M-TRAC

*for rail safety*

METRO TORONTO RESIDENTS' ACTION COMMITTEE

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January 11, 1988

Mr. Harold Gilbert  
Chairman  
Toronto Area Rail Transportation of  
Dangerous Goods Task Force  
4900 Yonge Street Suite 200  
Willowdale Ontario  
M2N 6A5

Dear Mr. Gilbert:

Submission on the Findings and Conclusions  
of Consultants' Reports.

We are pleased to enclose our comments on the consultants' reports and would urge once again that recommendations flowing from the Task Force centre on the need for a lasting solution to the long-festerling dangerous-goods rail problem in the Metro area.

Train accidents may be viewed as unpredictable. While we are cognizant of the fact that total train accidents in Canada have declined in recent years, serious train accidents, as defined by the Canadian Transport Commission, have increased.

It may not be the one car that derails at low speed that is a problem but rather the derailment of a whole group of cars, such as at Don Mills last July, and especially if such trains carry dangerous chemicals at high speed through the narrow high-density Metro corridor.

We believe the risk management report by Concord Scientific and the IBI Group has crystallized the risks involved if nothing is done. Public concern is high and the cry for relief is real. Thousands of people are waiting for action from this Task Force. We urge you to listen to their plea.

Yours sincerely,

*H Behrend*  
Harry Behrend, P. Eng.  
Deputy Chairman.

Enclosure

cc: Hon. John Crosbie, PC, MP, Minister of Transport  
Hon. Don Mazankowski, PC, MP, Deputy Prime Minister



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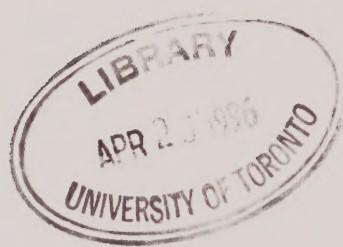




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## I. INTRODUCTION

On the evening of December 1, 1987, a large number of Metro Toronto community association leaders gathered to receive the long-awaited summaries of the findings of Task Force consultants.

It was an eventful occasion. These association groups were hopeful that a very serious problem, arising out of the transport of dangerous chemicals by rail through the heart of the Metro area, would finally be resolved.

Perhaps other cities in other provinces, with similar problems, were equally interested. Never before has such a thorough study been undertaken by an investigating body. Large sums of public funds had been channelled to these consultants whose study specialities ranged from public perception of the problem to means of improving emergency response should a disaster occur.

As the audience of some 150 persons awaited explanation of the summaries, they no doubt had thoughts of the 1979 Mississauga derailment, with its explosions and fires and forced evacuation of about 225,000 people. No one would want such disruption, suffering and heavy financial costs in an area where the population was significantly larger and evacuation was extremely difficult due to higher population densities.

Community leaders had reason to be hopeful that federal authorities would come to grips with the problem and find lasting solutions. The Minister who had

ordered the Task Force into action, the Honourable Don Mazankowski, had made a pledge to find a solution to this festering dangerous-goods issue and the integrity of Mr. Mazankowski was well recognized within the Metro area.

When Mr. Mazankowski was appointed Deputy Prime Minister and his Transport portfolio turned over to the Honourable John Crosbie, there was no reason to suggest Mr. Crosbie was not equally determined to find an equitable resolution. It was not just the Mississauga accident which concerned the Metro people but other accidents since then, such as Sucker Lake, Parry Sound, Medonté, Cambridge, MacMillan Yard and most recently the July derailment inside Metro, in Don Mills.

Because of the heavy concentration of people on both sides of the track, attention was focussed on the Canadian Pacific double-tracked freight line linked to Mississauga and other accident areas in the Metro region. In 1983, a joint report by Dr. Ian Burton and Mr. Keith Post recommended relocation of this line and warned that the potential for catastrophe already existed in Metro Toronto and would only worsen unless action was taken. (See Appendix A)

Undoubtedly, the consultants' findings would provide a stepping stone to the Task Force's own conclusions and recommendations. We appreciate that because of the Task Force's existence and Mr. Mazankowski's specific request, consideration was given in 1986 to an immediate slowdown in the transport of dangerous goods on the CP North Toronto Subdivision and we appreciate that CP Rail voluntarily reduced the speed during the Task Force's existence.

But community associations remain concerned about what will happen when the temporary slowdown is terminated. Furthermore, the slowdown covered only a little less than six miles of the track and the density of population is spread well beyond that confined zone.

When the consultants' summaries were distributed, there was some dismay among the community groups. Some of the conclusions appeared controversial and even suspect. While the Task Force chairman explained that the reports did not necessarily reflect the views of the Task Force, it was feared by some community groups that the consultants' reports would receive wide publicity and would be viewed in many quarters as material distributed by the Task Force and thereby gaining recognition as official Task Force matter, bearing the stamp of the Task Force itself.

As we discovered later, some of the controversial material had spread from one consultant's report to another, providing, to some extent, a network of conclusions which might appear highly questionable.

We shall deal with the consultants' reports in the this document. While some of the material is unacceptable--and, as we say, suspect--other portions of the reports are impressive and will be much appreciated by the public.

We would hope, finally, that when the Task Force makes its recommendations to Transport Minister Crosbie, it would give due attention to the situation--not as a statistic--but a real problem crying out for solution; give consideration to the public concern which is documented by Levy-Coughlin and finally propose a manner of resolution that is equitable.

The burden has been borne by the Metro people too long, the risks are too high and time is not on the side of those people who live under the constant threat of a serious derailment.



## II. THE PROBLEM BEFORE US

It has been stated many times that the rail situation in the high-density Metro Toronto area simply provides the possibility of a disaster waiting to happen.

Over and over again, the plea to Ottawa authorities is that something must be done to minimize the risks, not just for a few people but for many thousands of people--pensioners and housewives, adults and school children, white-collar workers and blue-collar workers, those who can fend for themselves and those who cannot.

Significantly, the message is repeated in that very valuable joint report of the IBI Group and Concord Scientific Corporation on risk management.

And it is pointed up again in the Emergency Preparedness report by the Institute of Environmental Research, located in North York.

Because of the density of population and difficulty of evacuation and because of the continuous flow of dangerous chemicals by rail through this human corridor, there will remain the possibility of disaster unless effective measures are taken, and taken soon.

It is important to note that these consultants, reporting to this Task Force, in essence tend to confirm the less detailed study of Dr. Ian Burton and Mr. Keith Post in their 1983 report which stated that the potential for catastrophe remains.

Virtually all of these reports point to the highest Metro risk, the CP Galt and the North Toronto Subdivisions, which represent the confluence of the highest density of humans confronted by one of the highest volumes of dangerous chemicals rail traffic.

A commonsense solution would be either to remove the people from their homes along the rail corridor or remove the dangerous chemical traffic from the populated area. In previous years the argument we heard is that if you removed the chemical traffic, many industries in Toronto would have to shut down and many people would be out of work.

Once and for all, the consultants, especially the IBI Group, have nailed down the fact that about 80 per cent of this chemical traffic is not destined for Toronto; it simply is being hauled through Toronto on its way elsewhere. We know also that this risk has been imposed on the people of Toronto, not with their consent or even their consultation. It was simply imposed through direction and approval from Ottawa, through the enlargement of a traffic route linked to a major new marshalling yard.

With markets for these chemicals expanding, rail traffic increased. Many residents were alarmed by the high speeds of these trains. They worried about a possible derailment and the consequences of such an accident.

Then came Mississauga, the forced evacuations, the explosions and fires, the spills of propane and chlorine and a rocketing tank car, shooting through the air a distance of almost a half-mile.

In a way, we were fortunate in Mississauga. It could have been a lot worse. It could have happened 20 minutes later in downtown Toronto and the chlorine could have seeped into the subway system and threatened schools and

hospitals. The cost was heavy. Your consultants place the Mississauga cost at about \$138 million. In current dollar terms that cost would represent a good portion of the cost of relocating the CP Galt, North Toronto and part of the Belleville Subdivisions.

It was not only Mississauga. We have had other costly rail accidents in the neighbourhood since then. One accident alone, at Sucker Lake, was estimated to have cost some \$12 million.

The railways may remark that no one died but that doesn't mean that no one suffered. Even the benchmark estimate of four "statistical" deaths a year by your consultant has a remarkable ring of unreality since it can be logically concluded that for years to come no one may die and then 40 or even 400 may succumb. Before that event, there may be overwhelming sub-lethal damage; there may be extensive human suffering and deep and widespread contamination and still the authorities may claim that no one died. No one may die but the suffering may be heavy. That is, before some disaster sweeps away scores of families all at one time.

What is to be done? We urge relocation of the CP line, into a safe corridor, away from the public. But we realize that relocation is a lengthy process. If Metro Toronto is to face the same experience as Regina, there may be years of waste in court battles as the railways contest each step and challenge each decision right up to the Supreme Court of Canada.

Yet we see no alternative unless this Task force is able to make such strong recommendations that federal Transport Minister John Crosbie virtually orders relocation. And even then, it may take years to complete engineering and environmental assessments, acquire the land and complete construction.

Thus, no matter what this Task Force may recommend, the existing burden will remain with the people of Toronto for some years.

It is therefore urgent that effective short-term measures reduce the existing threats. We urge you to look at the need for speed restraint; for a higher degree of maintenance and inspection; perhaps even a need for shorter trains so that the front-end crew can see the entire length of the train, especially in cases of cabooseless operations.



It should not be lost to this Task Force that the Canadian Transport Commission, in its December 1987 cabooseless train decision, noted that trains without cabooses will increase risk, although not significantly. The Task Force should also note that with cabooseless trains where the new end-of-train unit fails, the federal order states that the speed shall be reduced to 25 miles per hour. (See Appendix B) We believe that 25 miles per hour is recognized by authorities as a reasonably safe speed and that it should be enforced throughout Metro until relocation or rerouting takes place.



### III. DISTORTIONS IN THE LOOKING GLASS

To get a grip on the problem facing Metro Toronto, this Task Force ordered a public perception survey. The results were quite revealing.

One criticism of the consultant, Ekos Research Associates of Ottawa, is the manner in which this company cast its survey net, describing respondents as Torontonians or Toronto area people when, in fact, the survey covered Metro Toronto and all the regions to the north. The population covered represented about 3.5 million people, almost half the population of the entire province.

We suggest that those vitally concerned reside or work in the high-density core of Metro Toronto and more particularly close to the Canadian Pacific freight line that runs through the heart of Metro.

So, in spite of the very wide net cast, it was surprising and impressive that fully 62 per cent of the respondents were opposed to the transport of dangerous chemicals by rail through densely populated areas.

This, in our view, is vital to your deliberations. If such a large number believe dangerous goods rail traffic should by-pass the high density area, there must be very considerable concern over such traffic and a public readiness to help cover the costs of minimizing the risks.

Moreover, surveys commissioned by M-TRAC and by the City of Toronto generally underscore these Ekos findings. The surveys by the Levy-Coughlin Partnership of Toronto focussed on a two-mile band flanking the CP line in the City of Toronto and across Metro from Etobicoke to Scarborough. The message was clear: those close to the dangerous goods traffic emphatically want the risk removed and large numbers are willing to pay higher taxes to get the job done.

We acknowledge that perceptions can change with events and public moods. Surveys taken after such events as the 1986 Hinton disaster or the 1979 Mississauga crisis would likely produce results differing from a period in which no derailments or collisions have taken place.

Nevertheless, we are impressed with the high level of concern. It reflects the same kind of concern expressed by the 1983 Burton-Post Report which warned of the potential for catastrophe.

While consultants measure concern, it is quite apparent that anxiety would be felt most keenly by those who might suffer the most from a serious derailment. It would be logical to conclude that a person living 10 miles from the track would not be as concerned as a person living within 500 feet of the track. If you lump all these views into one calculation, you obviously reduce the reported level of overall concern.

The Ekos respondents were picked over a wider area than those of Levy-Coughlin. Of the 1,000 Ekos respondents, some 800 were selected from the regions north of Metro Toronto, although some added weight was given to the Metro responses. The Levy-Coughlin surveys covered some 400 respondents for Metro and 423 for the City.

While those to the north of Metro have legitimate concern over the possible relocation of the dangerous goods traffic, it should be borne in mind that the danger currently is centred on the existing CP line and has been borne by the people of Metro Toronto for the last 20 years or more. (See Appendix C). The warning of potential disaster has come from many quarters over a period of years. Is it justifiable that these people who have borne this risk over such a long period continue to bear this burden alone?

Contrary to all expectations and even contrary to the company's own findings, the Ekos conclusions suggest that not only must the Toronto people continue to do so but that they prefer to do so. This inconsistency in the Ekos conclusions must be weighed against the reports of the respondents' high concern and their opposition to the transfer of dangerous goods through high density areas. How could Ekos have possibly reached a conclusion that the public does not favour relocation of the dangerous goods traffic? It simply is contrary to the obvious facts.

It appears this conclusion was based on a philosophical question of whether it is fair to transfer dangerous goods traffic from a highly populated to a less populated area. Surely, it is reasonable to conclude that it would not be fair. Although Ekos reports that some 34 per cent--equivalent to about 1,000,000 people--nevertheless felt it would be fair, it should be emphasized that M-TRAC proposes that the new route be well protected and well separated from the public. We do not support shifting the problem to another populated community.

What is puzzling is how Ekos could make a statement that there is no public support for relocation when, in fact, 34 per cent of the respondents covering Metro and the Regions to the north favoured relocation, even without a protected corridor.

We suggest this Ekos conclusion is ill-founded and erroneous. It should be compared with the report of the Levy-Coughlin Partnership which found in its Metro survey that more than 70 per cent support relocation to a protected corridor and that roughly 50 per cent are prepared to help bear the financial cost through higher taxes. (See Appendix D).

Whether Ekos was capable of handling this assignment in a professional manner is another question. We know that Peat Marwick Consulting Group of Ottawa, the highly-respected management consultants, took an interest in the matter and reviewed the Ekos findings for us. The Peat Marwick report is attached. (See Appendix E). It found Ekos "in error in a variety of technical aspects and misleading in its analysis and interpretation."

Peat Marwick suggested the Ekos conclusion exceeded the scope of the study. The conclusions were "well beyond the evidence of the survey itself." And we think that many people will agree with Peat Marwick. Ekos studded its conclusions with little arrows aimed at those who favoured relocation of the dangerous goods traffic. For example, Peat Marwick noted that Ekos used the word "only" in reference to the 27 per cent of respondents who felt that the railways had traditionally been irresponsible in their attention to public safety. We quote Peat Marwick:

"I find 27 per cent having such a strong feeling as irresponsibility  
an incredible large number." (Underscore added)

It appeared obvious that Ekos, by using the word "only" was trying to downplay the impact of those who felt the railways had not acted responsibly. The same kind of editorial colouring shows up in many parts of the Ekos report. We invite the Task Force to look carefully at the Peat Marwick commentary and judge whether Ekos was fair in its conclusion that public support for rail relocation does not exist.

The questions Levy-Coughlin asked in the City of Toronto survey differed from those asked in the undertaking for M-TRAC. And again the results were somewhat different. While only about one-quarter of those surveyed felt threatened by the dangerous goods traffic, Levy -Coughlin found that:

"The most popular option for reducing the risk from dangerous goods traffic is the movement of dangerous goods traffic to a protected corridor. This option was chosen by 54.2 per cent of the sample."

It is interesting to note that even among those who felt they were safe or neither safe nor endangered, there was significant support for relocation of the dangerous goods traffic. Of those surveyed in the City of Toronto, 43 per cent expressed willingness to pay higher taxes to reduce the risk.

From all these surveys a picture emerges of deep concern, at least in the Metro area, over the possibility of a rail disaster. Amid these list of numbers and percentages, there must be heard the cry of those who feel imperilled. There is concern.

Every survey tells you that. There is a cry for action. And every survey tells you that. It matters little if some pollster offers you his profound view that the level of concern in the Toronto area is two per cent higher or lower than, say, in Regina or Vancouver or Timbuctoo. And it matters little if this pollster, in his profound judgement, offers you his sweeping testament that the public wants reform, not revolution.

Those people who may be affected by accidents on the CP line know they may have difficulty getting out of the danger area in time. They know their children may be in danger in the many schools located near the track. They know their senior citizens may be in danger in their high-rise apartments near the track.

The population and institutions are located right at the railway fence. There is no protected corridor. Hospital evacuation is difficult. There is no easy escape. They are at the mercy of a situation which they did not create and they are the potential victims of a catastrophe simply waiting to happen.

One accident has followed another since Mississauga. The last one in Don Mills in July 1987 was largely limited to empty cars which derailed. Fire Chief Joe Gibson said in his report to North York Council;

"The situation once again brings to the forefront the real need for safer means and greater precautions in transporting goods and materials by rail."

Traffic Commissioner Vince Murphy added in that same report;

"While the actual cause of the accident is apparently still under investigation, it is obvious that there was the potential for a major disaster."

The next derailment could contain loaded dangerous product. It does not take a pollster to relate what could happen in that event. It may simply be a case of counting the dead and the injured, and the property and environmental damage.





#### IV. SPEED--THE NEED FOR RESTRAINT

Many people in Metro Toronto are living with memories of the Mississauga derailment and other accidents in and near the Metro area. These, we know, occurred at medium and high speeds. When another CP freight train derailed in Metro last July, and the speed was reported at 40 miles an hour or more, there was an immediate outcry for tighter speed control.

We are grateful that CP Rail agreed to a voluntary reduction to 25 miles per hour over a six-mile segment in 1986. But this is due to expire next March, or shortly thereafter, and the spectre of dangerous goods trains racing through the high-density population at higher speeds leaves many residents with a hopeless feeling of vulnerability to another type of Mississauga derailment--or worse.

There is need for a rigidly-controlled speed limitation on all dangerous goods train movements in the Metro area, including cars carrying residues of dangerous goods. We feel this is the very minimum requirement pending removal of the dangerous goods traffic from the sensitive high-density area where evacuation is difficult.

Support for a regulated 25-miles-per-hour speed limit is widespread. Municipal governments, community organizations and Members of Parliament and members of Cabinet have endorsed this restraint. (See Appendix F). At the very least, speed restraint reduces the momentum of the train and the extent of damage resulting from a derailment.

We are impressed with the analysis by Mr. Sam Cass, Metro Commissioner of Roads and Traffic, who concluded that even a reduction of speed from 35 miles per hour to 25 miles can reduce the extent of damage by as much as 39 per cent. (See Appendix G).

Thus, we were rather surprised by the Delcan speed consultant's executive summary which seemed to suggest that if the train speed is reduced to 25 miles per hour, this simply will be encouraging more accidents. He advocated a much higher speed and he produced charts and graphs to support his findings that most derailments occur in the range of 10 to 25 miles per hour and that the number of cars derailing "will be the greatest at about 25 MPH (40 KPH)."

That information has been spread across the country through the summaries released under the stamp of this Task Force and may be taken by the general public to mean that this Task Force believes there is substance to this material. But we are not convinced that Delcan's conclusions are definitive.

We were initially baffled by this Delcan material and you should know that it caused great confusion and suspicion among many of our supporting groups, some of whom exclaimed after the December 1, 1987, distribution of the consultant summaries that this appeared to be a federal government "whitewash."

It is understood that this Task Force takes no responsibility for a consultant's conclusions but it must also be accepted that these consultants were hired by the Task Force through the use of public funds and from time to time there must have been a flow of communications between the consultants and the Task Force project director. And if the consultant seemed to be going astray, we are sure the project director would have told him so.

As we have seen from reaction at various regional meetings and other Task Force appearances, suspicion over the validity of the speed consultant's findings continued to grow.

We sought our own expert advice. Since we now have the experience of the 25-mile-per-hour speed limit on the CP North Toronto Subdivision, we searched the Delcan document for reference to accidents on this line. We could find none and we were dismayed to hear a member of the Task Force staff tell the Toronto City Services Committee that he knew of no statistics on that matter. The information is no secret. It is quite clear that the 25-mile-per-hour restraint has been effective. No accidents have occurred at that speed on that stretch of track and the one that did occur at Don Mills last July was at a much higher speed--in fact within the range recommended by the Delcan consultant. Now, why didn't the consultant tell you this? And why was this information not passed along to the public at the time the Delcan executive summary was distributed?

How, in fact, did the consultant arrive at the astounding conclusion that 25 miles per hour was a relatively unsafe speed? He says that part of his source included CP data. Then, why was the experience of the Toronto situation not made clear in his report? It appears more likely that the consultant did not stick to the situation in the Toronto area or, for that matter, to Canada as a whole but ranged over the entire continent, giving preference and priority to United States statistics and accident reports gathered by the Federal Railroad Administration in Washington. We question whether his conclusions represent the real Toronto situation.

In the United States, track is classified by class and Class 1 and Class 2 track include speed restrictions of 10 miles an hour and 25 miles per hour, respectively. Accidents that occur in those two classes would be within restricted speeds. It may not be the speed that causes accidents on these classes of track but inferior equipment or bad rail beds or rail itself. That is why the speed

restrictions have been imposed. To go at higher speeds on these lines would invite disaster.

The class of U.S. track most identical to the kind of track in the Toronto area is Class 4 track where the speed can be extended to 60 miles per hour. What is the experience of accident frequency on Class 4 track? We turn to the Association of American Railroads (See Appendix H) for our evidence and find to our astonishment that the greater frequency of accidents is not at 25 miles per hour or less, as the Delcan consultant suggests but ABOVE 25 MILES PER HOUR. Even if you include Class 3 track in the U.S., where the speed limit is 40 miles per hour, The accident frequency is still higher than 25 miles per hour. (See Appendix I). Why didn't he tell you that he included mainline accidents in Class 1 and Class 2 track in his over-all estimate?

The most apparent reason to us is that such an admission would have left the impression that 25 miles per hour is a safe speed. That might have upset his entire statistical arrangement. It would appear to us that the result for the largely uninformed public was a concoction, an impression, that if you reduce the train speeds to 25 miles per hour, the trains are likely to fall off the track and everyone will suffer.

Perhaps we have been unkind in our remarks. We can only go on the basis of what the Task Force distributed and which met with so much public suspicion. We did confer with the National Transportation Safety Board in Washington and with the Institute of Risk Research at the University of Waterloo. We understand that different statistical models can produce different statistical results. It is our judgement that the Delcan consultant did not serve the public well. He did acknowledge however, that the severity of derailments increases with the speed of the train. And that alone is reason enough to keep speeds down in Toronto.

We believe his concentration on the 25 miles per hour statistics was deliberate and may directly relate to public demands for a regulated speed limit in the high-risk Metro area.

We believe the consultant conveyed an unwarranted fear that 25 miles per hour would be unsafe, despite the fact that many U.S. cities have fought and obtained such speed restrictions in their own communities. Further, we believe that the consultant was trying to compare oranges and apples in his statistical analysis. He would have served the public better by providing the results of Class 4 track in the United States in direct relation to the Toronto situation.





## V. STRIKING THE RIGHT ROAD

In the search for a feasible alternative route, we were impressed with the massive and professional effort of the IBI Group and its able Managing Director, Mr. Neil Irwin, and with the project director, Mr. Lee Sims.

This was no easy assignment. Whether relief could be found for the vulnerable Metro people depended on the availability of a route which would not throw existing risks onto another major community but would permit free and open movement for the rail lines in a specifically assigned corridor, flanked by public protection.

A protected corridor, keeping the general public as far removed from the rail line as possible, is essential, in our view, to prevent the need for another task force, sometime in the future, being confronted with the same kind of problem we face in Toronto today.

The IBI Group has provided a selection of possible alternative routes, along with an estimate of benefits and disadvantages, as well as an estimate of capital and operating costs.

We, of course, realize that this is the first stage and that a great deal more work must be done before a new line or rail link can actually be started. It may take years to complete the job.

But we believe that a start must be made. The corridor land must be set aside now before it is lost to rapid development. The longer the delay the more difficult and more costly the job may be. The Minister of Transport has asked this Task Force to judge whether an alternative route is feasible and, on the basis of the IBI Group, it appears evident that development of a rail by-pass, in one form or another, is feasible. Each possible alternative would lead to differing benefits and disadvantages and wide-ranging differences in capital costs.

We were dismayed, when the cost figures were aired in various Council meetings, that the figure most widely discussed was the highest--about \$1.7 billion. This would be the estimated cost of a three and four-track option known as Alternative C-2. We were informed that the newspaper reports which highlighted this figure raised alarm in Ottawa. While the government has seen fit to allocate billions of dollars to various projects, we accept that it may be difficult for the government to accept an expenditure of such a large sum to protect the people of Toronto. Although it should be made clear that in any event the federal government would not be the only body to cover the capital costs of an alternative route.

We would expect that some of the cost would be shared by other governments involved and the railways which would obtain the capital value of the new line.

Nevertheless, we suggest there is no need for such a high expenditure. The IBI Group has pointed to a more reasonable approach, known as a C-3, which would cost just about one-third of the C-2 line. The estimated \$665 million capital cost for the C-3 route would include a buffer, some quadrupling of track to cover needs for both Canadian National and Canadian Pacific, along with two CN layover yards and a brand-new marshalling yard for CP, replacing the Agincourt yard in Scarborough.

For the track alone, the estimated capital cost is \$437 million. The CN and CP yards would cost an additional \$228 million.

Since the estimated \$665 million cost would be spread over a number of years and would be shared by various bodies, the impact on the federal treasury would not be all that great. And the end result would be a tangible asset, of benefit to the entire region, as well as the labour force since the construction phase would provide thousands of new jobs.

Moreover, the new line would undoubtedly be built with the latest technology, including the best track technology and would be a model not only for the central region but for other areas as well. Much work has been done in Europe, for example, in designing new marshalling yards and the latest safety features might be incorporated in the new CP yard at little extra cost.

For CP Rail, such a yard relocation would have added benefits, since it would provide a more strategic location and would overcome congestion on the existing route.

The IBI Group may not have paid much attention to the fact that each time CP moves a train to the Toronto yard in Agincourt, it frequently has to backhaul the train after classification and this adds to operating costs.

Another point: Many of the bridges on the existing route cutting through Toronto may be coming to the end of their life span and may have to be replaced at great cost. Some unofficial estimates place this cost as high as \$300 million. CP Rail cannot expect the public to pay for the replacement costs but it is likely that the public purse will pay a good share of the capital cost of constructing new bridges if and when the new route to the north is built.

This would be an advantage to CP Rail and an advantage to CP shareholders. Although Mr. Justice Samuel Grange, in his Mississauga derailment investigation, suggested the railways perhaps should bear the responsibility for risks incurred, we do not agree that CP Rail should bear the entire burden for relocation of traffic lines. Governments also bear a responsibility for allowing a population build-up along the right of way; zoning discipline must be ensured in an alternative route.

Nevertheless, the people of Toronto did not ask that CP Rail develop a double-tracked national freight line, carrying large volumes of dangerous chemicals, through the heart of the Metro population centre. The public was not consulted when the entire North Toronto traffic flow was changed through development of the Agincourt classification yard. The added risk was thrust on the public and the fears of a possible disaster multiplied following the Mississauga explosions and fire.

What, then, should be the cost for relieving the Toronto people of their fears, which grow each time an accident takes place? We did not expect that the IBI Group would place any figure on anxiety and concern. But we know that anxiety and concern exist and this has been confirmed by the perception surveys and the community associations which have made submissions to the Task Force.

If the only cost to be taken into consideration is the economic cost of relocating the CP line, then we suggest the C-3 estimate is cheap. It provides large-scale benefits at minimum cost. And if you take the cost of replacing existing rail bridges nearing the end of their life span, and reducing the cost of back-hauls and other operating expenditures involved, the trade-off may mean virtually no over-all additional economic charges.

This kind of equation is a far cry from the maximum \$1.7 billion figure flouted across the news pages. We don't need a Rolls Royce or even a Cadillac to do the job. A plain Ford will do. The urgency is to move forward.





## VI. WHAT PRICE LIFE?

History is studded with references to the dead. We have man-made disasters and natural disasters. We have masses of references to the value of life and even statistical data on the price to be paid to preserve life.

Each time a victim of some occurrence is rushed to hospital there is a cost in caring and treatment of that victim. It is difficult to assess the total cost, especially in the case of long-suffering victims, such as those in the Bhopal catastrophe, where care and treatment may have to continue for many years.

Here, in these consultants' studies, we see attempts to place a value on the cost of preserving life if the highly-sensitive CP rail line in downtown Toronto is moved to a safe corridor.

In the risk management study by the IBI Group and Concord Scientific Corporation, we have a summary of costs per life saved expressed for various human activities in 1975 dollars. These costs range from some \$200,000 per life in automobile safety to up to \$1 billion to control civilian high-level nuclear waste.

In the case of possible rail improvement or relocation, the cost per life saved may range between \$5 million to \$33 million, depending on the alternatives selected.

Thus, we have a convergence of social and financial consideration. It is reasonable to suggest there must be a limit on amounts spent to prevent needless death. If an activity is bound to bring death, then it should be avoided, if at all possible. The consultants tell you there are hot spots on the CP line in Metro Toronto and the chance of death is greatest on the Galt and North Toronto Subdivisions. It should be noted this estimate was made before cabooseless operations were approved, with the likelihood of long, heavy trains rolling by in Toronto without any protection at the rear of the train.

The consultants also tell you that attempts to improve safety on the existing line, through technological and other means, will be costly and will only produce marginal benefits. The impression left by the risk management report is that relocation will be the most beneficial, especially if accompanied by an effective buffer zone which we do not have in Toronto.

The cost may be a negative factor. Should we spend as much as \$10 million or even \$20 million to save one life? If we take the nuclear industry as a comparison, the rail relocation price would appear cheap when related to long-term benefits. For it is not a question of saving one life; it is a question of saving many lives from injuries and long-term suffering and of saving the railways and shippers from heavy economic damage resulting from rail accidents.

One of the most intriguing conclusions among the various studies was the estimate of four statistical deaths a year in the Greater Toronto Area if nothing is done to remove the dangerous chemical traffic from downtown Toronto. Granted it may not happen, but then, again, the deaths may turn up as 40 every 10 years or 400 every 100 years. Along with the deaths would be the relative numbers of injured, the suffering, the heavy structural and environmental damage. As the risk management study suggests, the Mississauga derailment might have turned into a \$1 billion disaster had it occurred just 20 minutes later.

Could Mississauga happen again? We suggest the Don Mills derailment last July gave us a warning. At the speed it was travelling the train might have presented a major disaster had it been carrying loaded cars of dangerous chemicals instead of the empty cars which derailed.

You will recall Environment Canada's assessment of the Bhopal disaster and the question whether it could happen in Canada. It concluded that such an accident could happen and proposed a number of minimizing or preventative measures. One of these was the creation of buffer zones and specific traffic routes to reduce public exposure.

The risk management study points in that direction. Buffer zones can minimize the risk, if properly managed. But what size should the buffer be? The risk assessment report provides some suggestions. We believe the minimum should be at least 200 metres on either side of the track. There may be places along proposed new routes where the terrain will provide a natural buffer and there may be places where sufficient buffer space may not be easy to find. These are problems which can be resolved. The initial step must be a forceful decision to initiate action. It is up to this Task Force to produce that essential step.

We know buffer zones cost money. If you reduce the use of the land to prevent high-rises, institutions and high-density structures, then you reduce the potential value of the land. So saving lives bears a price. But we put buffers around airports and we don't allow the potential price difference to deter us. That also may provide a guidance.

We were impressed with Environment Canada's general assessment and review of the Bhopal catastrophe, issued in February 1986. The general thrust is to separate high-density populations and chemical installations. The continuous movement of dangerous goods by rail through the Toronto area might easily be

compared with the dangers of a chemical installation, except that the movement itself presents an added risk.

So what, then, should be the maximum price to be set on saving lives? The consultants provide an estimate which is based, undoubtedly, on other value estimates, such as what price railways can obtain for land vacated in Toronto, including the Agincourt yard. Some investors would suggest the consultant's evaluation on Agincourt is far too low. If you get a higher price, this might help offset the cost of saving lives through the relocation process.

If railways do not have to meet the cost of renewing and replacing aging bridges on existing routes, the savings also might be translated into lower costs for protecting the public through rerouting or relocation. All sorts of financial scenarios can be thrown into the hopper in making value judgements on bottom-line costs. In the end, we must all decide whether lives should be saved and whether we are prepared to pay the price. It may be significant that both the Levy-Coughlin and the Ekos perception surveys indicate that many people are prepared to dig into their pockets through higher taxes to help finance a solution.

The Task Force is well aware of the concern of the public. It is aware that there is strong support in the Metro area for a speed slowdown until action can be taken to relocate the dangerous goods traffic in a protected corridor, away from the public. We realize the transfer, if approved, will take time to complete. We see, through the Regina experience, that every action by Metro may be challenged by the railways right up the Supreme Court of Canada. We find that disappointing and we know that if this process is repeated in the Toronto area, the transfer to another site will take more years through delaying tactics.

In the current situation, the importance of speed restraint cannot be overemphasized. We must have maximum vigilance, intensified inspection and

maintenance of the track, equipment and marshalling procedure. The municipalities and the community groups have pleaded for a maximum 25-mile-per-hour speed limit in Metro on all dangerous goods trains, including dangerous goods residues. We hope this Task Force will agree.





## VII. RECOMMENDATIONS

### SHORT-TERM

- Reduce the speed of all dangerous goods trains, including residue cars, to 25 miles per hour (40 KPH) throughout the Metro area. This reduction should be enforced through regulations.
- Increase maintenance and inspection with particular emphasis on the CP North Toronto Subdivision, including marshalling of trains.
- Install effective monitoring of train speeds, either through wayside or on-board equipment.

### LONG-TERM

- Select a route for relocation of the dangerous goods traffic. Give the C-3 route, prime consideration because of its effectiveness and lower capital costs.
- Initiate the process for relocation, through a federally-sponsored body in which local authorities can have input.









Canadian Transport  
Commission

Railway Transport  
Committee

Commission canadienne  
des transports

Comité des transports  
par chemin de fer

**The Transport of Dangerous Commodities  
by Rail in the Toronto Census Metropolitan Area:  
A Preliminary Assessment of Risk**

Prepared by

Ian Burton   Keith Post

For the  
Canadian Transport Commission  
Railway Transport Committee

May 1983



This is clearly a matter for the judgement of others than the risk analysts. It can be said, however, that the potential for serious accidents clearly exists and that it has grown up inadvertently with the growth in some risk factors. The allocation of more effort to risk reduction depends upon the acceptability of the risk as now understood and the costs of any mitigation proposed.

We therefore recommend that consideration be given to diverting the flow of special dangerous commodities off the Galt and North Toronto Subdivision of CP Rail, and re-routing them along the York Subdivision of CNR. Such re-routing will require the making of some new connections between CN and CP tracks. The feasibility of this re-routing should be examined as a matter of urgency.

We recommend this course of action because we believe that the evidence shows that there would be much lower risk if dangerous commodities were transported through less densely populated areas. We regard this as a palliative and temporary response only. There is also a need for a reassessment of railway siting and routes in the most populated areas of the province.

A Task Force (Ontario Task Force on Provincial Rail Policy 1981) recommended (p. 89) in 1981 "the re-routing of dangerous goods rail traffic around population centres. Routes through cities should be avoided where alternative routes exist, as in the case of the Toronto area". So far this recommendation appears to have led to no action after two years.



We therefore suggest that the interested parties initiate an examination of the possibility of railway relocation, so that new routes may be provided to permit the transport of dangerous commodities around population centres.

Beyond that, a question is addressed to planners and policy makers at municipal and provincial levels. We have seen that risk factor increase is to a large extent responsible for the present situation. Has the municipal level of government done enough to keep high population density away from areas of technological risk? The growth of modern suburbs close to the York Subdivision of CNR is evidence that the danger of major railway accidents has either been ignored or discounted at the municipal level. An Ontario Government report issued in 1981 deals with land use planning for noise control in residential communities. (Ontario Ministry of Municipal Affairs and Housing 1981). It should be possible to prepare similar information for risk reduction in residential communities for the guidance of planners and policy makers at the municipal level.

The adoption of a policy of keeping population at respectable distances from rail lines where dangerous commodities are being transported in large quantities needs to be addressed, but it is much too late for such a policy to have rapid or significant effect in those areas where dense populations are already found. Unless some action is taken, the risk factors will continue to increase and potential for catastrophe that already exists will become steadily greater.











Canadian Transport  
Commission

Railway Transport  
Committee

Commission canadienne  
des transports

Comité des transports  
par chemin de fer



A DECISION PERTAINING TO CABOOSELESS TRAIN  
OPERATIONS ON CANADIAN NATIONAL  
AND CANADIAN PACIFIC RAILWAYS

Commissioner J.F. Walter  
Chairman

Commissioner R.J. Orange

December 1987

Canada



CANADIAN TRANSPORT COMMISSION  
RAILWAY TRANSPORT COMMITTEE

ORDER NO.: R-41300

December 14, 1987

**IN THE MATTER OF** an application filed by Canadian Pacific Limited, for approval of amendments to Rules 19, 19A, 90A and 102 of the Canadian Transport Commission's Regulations No. O-8, Uniform Code of Operating Rules, C.R.C. 1978, c. 1175;

**IN THE MATTER OF** an application filed by the Canadian National Railway Company for relief from Rule 90A of the Canadian Transport Commission's Regulations No. O-8, Uniform Code of Operating Rules, C.R.C. 1978, c. 1175;

**IN THE MATTER OF** tests, conducted to evaluate the reliability of the end-of-train unit and associated devices and to evaluate the risks associated with train operation without rear train crew, required by the Railway Transport Committee pursuant to its decision of September 16, 1985 which dealt with the matter of testing cabooseless trains.

File Nos. 4357R90-A.1  
4357R90-A.2



accommodations shall comply with Section 10.15 of Part X of the On Board Trains Occupational Safety and Health Regulations, made pursuant to Part IV of the Canada Labour Code.

1.15 The lead locomotive cab of a cabooseless train shall be equipped with a fold-out or permanent table for the conductor to perform his work and with indirect lighting that will not require the cab ceiling light to be used for the conductor to read documents or perform paper work, and that will not interfere with the vision of the other crew members in that cab at night.

1.16 The sanitary facilities in all occupied locomotive cabs of a cabooseless train shall be provided in compliance with the provisions of Part VI of the On Board Trains Occupational Safety and Health Regulations made pursuant to Part IV of the Canada Labour Code.

1.17 At least one locomotive in the lead locomotive consist on a cabooseless train shall be equipped with first aid equipment, including a stretcher, placed in a storage space that will preserve the integrity of that equipment and that will not interfere with the conduct of duties by the crew members in that locomotive consist.

1.18 A cabooseless train shall not be permitted to leave a crew change point unless all components of the end-of-train-system are properly functioning.

1.19 Where any component or function of an end-of-train-information-system fails en route, the cabooseless train shall proceed to the next crew change point at a speed not exceeding 25 mph.

1.20 Prior to the operation of cabooseless trains, and for purposes of 1.18 and 1.19, Canadian Pacific Limited and Canadian









CANADA

MINISTER WITHOUT PORTFOLIO  
MINISTRE D'ÉTAT

HOUSE OF COMMONS

CHAMBRE DES COMMUNES

Ottawa, May 29, 1968.

Mr. J. C. Fuller,  
President,  
North Rosedale Ratepayers Association,  
14 Standish Avenue,  
Toronto 5, Ontario.

DEMAND FOR  
SLOWDOWN

Dear Mr. Fuller,

Upon my arrival here in Ottawa today, I discovered your letter of May 24 with respect to the C.P.R. North Toronto Rail Subdivision and the North Rosedale Ratepayers' Association waiting for me.

May I firstly express my thanks to you for your very kind words on the occasion of my appointment.

I was very interested to have your comments on the material which I forwarded and I will look forward to hearing from Dr. Reilly when his sub-committee is in a position to discuss further.

As I mentioned to you, through the auspices of a friend I have reopened correspondence with Mr. Crump of the C.P.R. with the specific suggestion that the speed limit might be reduced to 25 miles per hour for freight trains. I will keep you posted on his response.

Yours sincerely,

Doreen S. Macdonald

D. S. Macdonald







REPORT ON A SURVEY OF PUBLIC OPINION REGARDING THE TRANSPORTATION  
OF DANGEROUS GOODS BY RAIL

PREPARED FOR : METRO TORONTO RESIDENTS'  
ACTION COMMITTEE

PREPARED BY : THE LEVY-COUGHLIN  
PARTNERSHIP  
SEPTEMBER 25, 1987.



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## **1.0 Introduction**

In August 1987, the Metro Toronto Residents' Action Committee (M-TRAC) requested a survey of public opinion related to the transportation of dangerous goods by rail within the Metro Toronto area.

Subsequent consultation with M-TRAC resulted in the following objectives;

- To determine public reaction to the transportation of dangerous goods through densely populated areas
- To determine public reaction to the movement of dangerous goods traffic to a protected corridor
- To determine public willingness to pay additional taxes to support the movement of the dangerous goods traffic to a protected corridor

This report presents the survey methodology and study findings.



## **2.0 The Study Method**

In summary, the method used to collect the information for this study was a telephone survey of 401 residents of Metro Toronto.

### **The Target Respondent**

The target respondent for purposes of this survey was defined as a male or female citizen of Metro Toronto, 18 years of age or older, who resided in a household up to one mile of either side of the C. P. North Toronto/Galt rail corridor.

This universe was chosen to obtain the opinions of Toronto Residents with a higher relative risk from rail accidents involving the transportation of dangerous goods.

Although a medium consequence zone had been defined from previous studies as 1,000 metres (The Wade Report), the distance of a mile was chosen in order to measure public opinion from a broader and thus more conservative distance from the rail line.

### **The Sample Design**

Given the definition of the target respondent for the survey, the sample universe consisted of all residential single family dwellings within the one mile limit on either side of the rail line.

The sample was drawn in the following manner;

- All streets and partial streets that fell within the study universe were identified using a street map of the universe.
- A count was then made of all households that existed on the streets and partial streets to determine the skip factor for sampling. This count was accomplished using a "reverse directory" with phone numbers organized by street rather than name.
- A sequential random sample of households and their phone numbers was then drawn using the calculated skip factor.



### The Interview Instrument

A questionnaire was designed in consultation with M-TRAC to address the study information requirements. Specific questions related to the movement of dangerous goods traffic to a protected corridor were posed in both a positive and negative manner and rotated to minimize response bias. A copy of the questionnaire is included in Appendix A.

### Study Execution

Interviewing was undertaken from the centralized facilities used by the Levy-Coughlin Partnership during the evenings of September first to September tenth, 1987. All interviewing was executed between the hours of 6:00 P.M. and 9:30 P.M.

The table below outlines the final call dispositions for the survey. In total 401 interviews were completed.

TABLE 2.1  
FINAL CALL DISPOSITIONS

	Number	Percentage
Total Dials	1,928	100.00
Interview Abort	10	0.52
Business Number	9	0.46
Language Barrier	103	5.34
Not a Working Number	303	15.72
No Answer	512	26.56
Busy Signal	141	7.31
Refusals	288	14.94
Respondent Not Available	142	7.37
Reject : Age	19	0.98
Completes	401	20.80



### **3.0 Survey Limitations**

As mentioned above, 401 interviews were completed. This number of completions allows for an accuracy level of  $\pm 4.99\%$ , 19 times out of 20. (Assuming conservatively that  $P=.5$ ,  $Q=.5$ )

The total number of households within the study universe is estimated to be approximately 197,000 households.\* If we assume 2.9 residents per household, the total population in the study universe is conservatively estimated to be 571,000 residents.

\* This estimate is based on information contained in the reverse directory. The directory only lists households with phone numbers.



## **4.0 Survey Results**

This section of the report presents the study results. The section is organized as follow;

- Profile of the sample
- Attitudes towards the movement of dangerous goods through densely populated areas
- Attitudes towards the movement of dangerous goods rail traffic to a protected corridor
- Attitudes towards the payment of higher taxes to support the movement of dangerous goods to a protected corridor

Each section is addressed in turn.

### **4.1 Profile of The Sample**

Table 4.1 on the opposite page, provides distributions of the sample demographic characteristics.

- 45% of the sample are male and 55% female (Table 4.1).
- Fully 71% of the sample are less than 45 years of age and 10% over 65. (Table 4.1).
- Over 19% of the sample reported 1986 household incomes less than \$20,000.00 ; 41% between \$20,000.00 and \$40,000.00; and 30% over \$40,000.00. (Table 4.1)



TABLE 4.1  
DISTRIBUTION OF SAMPLE DEMOGRAPHIC CHARACTERISTICS

Age	Number	Percent	Sex	Number	Percent
18-24	61	15.2	Male	179	44.6
25-34	123	30.7	Female	222	55.4
35-44	101	25.2	Total	<u>401</u>	<u>100.0</u>
45-54	35	8.7			
55-64	39	9.7			
65+	41	10.2			
Total	400	100.0			

Household Income	Number	Percent
Less than \$10,000	20	5.0
\$10,000 to \$20,000	57	14.2
\$20,000 to \$30,000	82	20.4
\$30,000 to \$40,000	78	19.5
Over \$40,000	121	30.1
Don't Know	4	1.0
Refused	39	9.7
	<u>401</u>	<u>100.0</u>



#### 4.2 Attitudes Towards The Movement Of Dangerous Goods Through Densely Populated Areas

Respondents initially were asked the following question;

"As you probably know, the freight trains that move through Toronto carry many different kinds of goods. In most cases these goods pose little risk to people, but in other cases they do.

Do you think trains carrying dangerous goods should move through densely populated areas?"

- Over 70% of respondents did not agree that trains carrying dangerous goods should move through densely populated areas.(Table 4.1)
- 14.7% did agree to the statement, and 14.2% qualified their opinion.(Table 4.2)
- Disagreement to the movement of dangerous goods is stronger among women relative to men. Over 76% of women disagreed with the statement compared to a lower 63.7% of men.(Table 4.2)
- However, respondents reporting the highest household incomes tend to report the lowest level of disagreement (62.8%) and the highest level of both agreement (19.8%) and qualified response (17.4%), relative to the other income groups.(Table 4.3)
- The percentage of respondents who expressed disagreement to the movement of dangerous goods was fairly constant regardless of their age - ranging from 68.6% to 73.8%.



TABLE 4.2

## ATTITUDE TOWARDS THE MOVEMENT OF DANGEROUS GOODS THROUGH DENSELY POPULATED AREAS

Do you think trains carrying dangerous goods should move through densely populated areas?

Base	Full Sample (401)	%
Yes	14.7	
No	70.8	
Depends	14.2	
Don't Know	.2	
	<u>100.0</u>	

Do you think trains carrying dangerous goods should move through densely populated areas?

Base	Gender	
	Males (179)	Females (222)
	%	%
Yes	21.8	9.0
No	63.7	76.6
Depends	14.5	14.0
Don't Know	0.0	.5
Total	<u>100.0</u>	<u>100.0</u>



TABLE 4.3

## ATTITUDE TOWARDS THE MOVEMENT OF DANGEROUS GOODS THROUGH DENSELY POPULATED AREAS

Do you think trains carrying dangerous goods should move through densely populated areas?

## Household Income

	Less than \$20,000	\$20,000 to \$40,000	Over \$40,000
Base	(77)	(160)	(121)
	%	%	%
Yes	14.3	12.5	19.8
No	72.7	74.4	62.8
Depends	13.0	13.1	17.4
Total	100.0	100.0	100.0



#### 4.3 Comments Regarding The Transportation Of Dangerous Goods Through Densely Populated Areas

All respondents were asked to comment on their particular choice regarding the transportation of dangerous goods through densely populated areas. The comments were content analyzed and categories created to reflect the major issues.

A distribution of the primary comments made is presented in Table 4.4, organized according to respondents opinions regarding the movement of dangerous goods through densely populated areas.

- The primary concerns among those who disagreed with the movement of goods related to derailments and accidents (36.3%), the danger and risk involved (26.8%) and they didn't want a "repeat of Mississauga" (11.3%). (Table 4.4)
- However, those who agreed to the movement expressed this opinion given the trains and track were properly maintained and safeguarded (30.5%), that there was no other alternative (28.8%) or had concerns regarding the cost of moving the traffic (10.2%). (Table 4.4)
- Finally, among those who qualified their response, the primary rationale was that there was no other alternative (31.6%), that it depended on the goods that were carried (24.6%) or it depended on proper precautions being taken (22.8%). (Table 4.4)



TABLE 4.4+

**PRIMARY COMMENTS REGARDING THE TRANSPORTATION OF DANGEROUS GOODS  
AMONG THOSE WHO DISAGREE WITH TRANSPORT THROUGH DENSELY POPULATED  
AREAS**

Base	(284)
	%
Concerns Regarding Derailments and Accidents	36.3
Concerns Regarding The Danger and Risk Involved	26.8
A Repeat Of Mississauga	11.3
Concerns Regarding Spills and Fumes	6.3

**PRIMARY COMMENTS REGARDING THE TRANSPORTATION OF DANGEROUS GOODS  
AMONG THOSE WHO AGREE WITH TRANSPORT THROUGH DENSELY POPULATED  
AREAS**

Base	(59)
	%
If Properly Maintained and Safeguarded	30.5
No Other Alternative	28.8
Concerns Regarding The Cost Of Moving The Traffic	10.2
Comments Related To Low Risk/ Few Accidents	8.5

**PRIMARY COMMENTS REGARDING THE TRANSPORTATION OF DANGEROUS GOODS  
AMONG THOSE WITH A QUALIFIED OPINION REGARDING TRANSPORT THROUGH  
DENSELY POPULATED AREAS**

Base	(57)
	%
No Other Alternative	31.6
Depends On Goods Carried	24.6
If Proper Precautions Taken	22.8

+ Multiple Response Table



#### **4.4 Attitude Towards The Movement Of Dangerous Goods Rail Traffic Into A Protected Corridor**

Survey respondents were further asked the following question;

"Some people have suggested moving inner city, dangerous goods rail traffic into a protected corridor. A protected corridor means the railway line has a wide band of open land around it, plus other features to help protect against accidents with dangerous goods.

I'd now like to read you a number of statements about moving dangerous goods rail traffic. I'd like you to tell me how much you agree or disagree with each statement using a scale from 1 to 10. 1 means you disagree completely and 10 means you agree completely.

Dangerous goods rail traffic should be moved out of densely populated areas into a protected corridor away from the public."

- Over 77% of the sample agree that dangerous goods rail traffic should be moved to a protected corridor away from the public.(Table 4.5)
- Agreement to the movement of rail traffic is higher among females (82.9%) than males (72.4%) (Table 4.6); and tends to be stronger among the older respondents and those reporting household incomes between \$20,000.00 and \$40,000.00.(Tables 4.7 and 4.8)
- As might be expected, those most strongly in favour of traffic movement were also most in disagreement that the rail traffic should run through densely populated areas. (Table 4.9)



TABLE 4.5

## ATTITUDE TOWARDS MOVING DANGEROUS GOODS RAIL TRAFFIC TO A PROTECTED CORRIDOR AWAY FROM THE PUBLIC

Dangerous goods rail traffic should be moved out of densely populated areas into a protected corridor away from the public

Full Sample	
Base	(399)
	%
Disagree+ (1 to 4)	9.3
Neutral (5)	13.0
Agree Somewhat (6 to 8)	27.3---
Agree Completely (9 and 10)	50.4---
Total	100.0

+ The scale values of 1 to 10 were aggregated into the categories presented in the table.



TABLE 4.6

## ATTITUDE TOWARDS MOVING DANGEROUS GOODS RAIL TRAFFIC TO A PROTECTED CORRIDOR AWAY FROM THE PUBLIC BY SEX

Dangerous goods rail traffic should be moved out of densely populated areas into a protected corridor away from the public

	Male	Female
Base	(178)	(221)
Disagree (1 to 4)	%	%
	13.5	5.9
Neutral (5)	14.0	12.2
Agree Somewhat (6 to 8)	27.5---	27.1---
	-72.4	-81.9
Agree Completely (9 and 10)	44.9---	54.8---
Total	<hr/> 100.0	<hr/> 100.0



TABLE 4.7

## ATTITUDE TOWARDS MOVING DANGEROUS GOODS RAIL TRAFFIC TO A PROTECTED CORRIDOR AWAY FROM THE PUBLIC BY AGE

Dangerous goods rail traffic should be moved out of densely populated areas into a protected corridor away from the public

	Age					
Base	18-24 (61)	25-34 (123)	35-44 (100)	45-54 (35)	55-64 (39)	Over 65 (40)
Disagree (1 to 4)	%	%	%	%	%	%
	9.8	9.8	9.0	11.4	7.7	7.5
Neutral (5)	6.6	13.8	15.0	11.4	10.3	20.0
Agree Somewhat (6 to 8)	32.8	27.6	27.0	34.3	17.9	22.5
Agree Completely (9 and 10)	50.8	48.8	49.0	42.9	64.1	50.0
Total	100.0	100.0	100.0	100.0	100.0	100.0



TABLE 4.8

## ATTITUDE TOWARDS MOVING DANGEROUS GOODS RAIL TRAFFIC TO A PROTECTED CORRIDOR AWAY FROM THE PUBLIC BY HOUSEHOLD INCOME

Dangerous goods rail traffic should be moved out of densely populated areas into a protected corridor away from the public

	Household Income		
	Less than \$20,000	\$20,000 to \$40,000	Over \$40,000
Base	(77)	(160)	(121)
Disagree (1 to 4)	%	%	%
	7.8	8.8	13.2
Neutral (5)	19.5	10.6	15.7
Agree Somewhat (6 to 8)	23.4	26.3	32.2
Agree Completely (9 and 10)	49.4	54.4	38.8
Total	100.0	100.0	100.0



TABLE 4.9

ATTITUDE TOWARDS MOVEMENT OF DANGEROUS GOODS RAIL TRAFFIC TO A PROTECTED CORRIDOR BY ATTITUDE TOWARDS DANGEROUS GOODS MOVING THROUGH DENSELY POPULATED AREAS

Base	Dangerous Goods Traffic Should Be Moved To A Protected Corridor		
	Disagree (37)	Neutral (52)	Agree (310)
Dangerous Goods Should Run Through Densely Populated Areas	%	%	%
Yes	54.1	26.9	8.1
No	32.4	46.2	79.7
Depends	13.5	26.9	11.9
Total	100.0	100.0	100.0



#### 4.5 Attitude Towards The Payment Of Higher Taxes To Have Dangerous Goods Rail Traffic Moved To A Protected Corridor

The final attitude question asked of the survey respondents was;

"I would be willing to pay more taxes to have the dangerous goods rail traffic that runs through Toronto moved to a protected corridor."

- Over 46% of respondents report some level of agreement to pay more taxes to have dangerous goods rail traffic moved to a protected corridor. (Table 4.10)
- As might be expected, the higher the agreement to moving the rail traffic, the higher the agreement to paying more taxes to support the movement. Over 55% of respondents who "agree completely" to the traffic movement also agree to pay more taxes, compared to only 12.5% who disagree to the movement. (Table 4.11)
- Further, agreement to pay more taxes appears to be virtually the same regardless of household income, with a slight but insignificant increase in agreement among the higher income groups. (Table 4.12)



TABLE 4.10

ATTITUDE TOWARDS THE PAYMENT OF HIGHER TAXES TO HAVE  
DANGEROUS GOODS RAIL TRAFFIC MOVED TO A PROTECTED CORRIDOR

I would be willing to pay more taxes to have the dangerous goods rail traffic that runs through Toronto moved to a protected corridor

## Full Sample

Base	(397)	
		%
Disagree (1 to 4)	35.3	
Neutral (5)	18.4	
Agree Somewhat (6 to 8)	28.0----	
Agree Completely (9 and 10)	18.4----	-- 46.4
Total	100.0	



TABLE 4.11

ATTITUDE TOWARDS THE PAYMENT OF HIGHER TAXES TO HAVE DANGEROUS GOODS RAIL TRAFFIC MOVED TO A PROTECTED CORRIDOR BY DEGREE AGREE DANGEROUS GOODS RAIL TRAFFIC SHOULD BE MOVED TO A PROTECTED CORRIDOR

Dangerous Goods Rail Traffic Should Be Moved to A Protected Corridor	Disagree Base (37)	Neutral (52)	Agree Somewhat (109)	Agree Completely (201)
Would Pay More Taxes	%	%	%	%
Disagree (1 to 4)	73.0	48.1	31.2	27.1
Neutral (5)	13.5	25.0	18.3	17.6
Agree Somewhat (6 to 8)	2.7	23.1	43.1	25.6
Agree Completely (9 and 10)	10.8	3.8	7.3	29.6
Total	100.0	100.0	100.0	100.0



TABLE 4.12

ATTITUDE TOWARDS PAYING HIGHER TAXES TO MOVE DANGEROUS GOODS  
RAIL TRAFFIC TO A PROTECTED CORRIDOR BY HOUSEHOLD INCOME

Household Income			
Base	Less than \$20,000 (77)	\$20,000 to \$40,000 (160)	Over \$40,000 (121)
Would Pay Higher Taxes	%	%	%
Disagree (1 to 4)	40.3	30.8	31.7
Neutral (5)	14.3	20.8	20.0
Agree Somewhat (6 to 8)	22.1- -45.5	30.2- -48.4	30.8- -48.3
Agree Completely (9 and 10)	23.4- —	18.2- —	17.5- —
Total	100.0	100.0	100.0



## 5.0 Conclusions

This section of the report presents the primary conclusions of the survey.

- o It is apparent that Metro Toronto residents living within a mile of the North Toronto/Galt rail corridor do not agree that trains carrying dangerous goods should move through densely populated areas.

Although this result may have been expected given the emotional nature of the issue, and the residents' proximity to the rail line; it is still a simple fact that over 70% of these resident are negatively disposed to the movement of dangerous goods - a strong majority in any survey.
- o Residents are primarily concerned with the possibility of derailments and accidents, followed by a perception of danger and risk related to the transport of the goods, and a repeat of "Mississauga".
- o Among the 29% who were either positively disposed to the movement or had a qualified response ("It Depends"), the primary rationale for their opinions had to do with proper maintenance and safeguarding of the trains and rail lines, and the belief that there was "no other alternative".
- o Given the negative reaction to the movement of dangerous goods, it is safe to assume residents would react positively towards solutions that might resolve the problem. In fact, when presented with the option to move dangerous goods traffic to a protected corridor, fully 77% reacted positively; and those most in disagreement with the movement of dangerous goods were most in agreement it be moved to a protected corridor.
- o As a final indicator of commitment to moving the rail traffic to a protected corridor, we found that over 46% of residents reported some degree of willingness to pay more taxes to support the cost of the movement. It should be noted that the level of agreement varied only slightly across all household income groups.



Yet, we interpret this as a somewhat wary response, given 46% were neutral or in slight agreement and only 18% agreed totally.

Thus, although we suspect a large tax increase would meet with some resistance and a smaller proportion than indicated would cheerfully pay the increased taxes, it appears almost half the residents cautiously report they would be willing to financially assist in some way to help resolve the issue.



APPENDIX A  
THE SURVEY QUESTIONNAIRE



QUESTIONNAIRE NUMBER \_\_\_\_\_

TELEPHONE # \_\_\_\_\_

TRANSPORTATION OF DANGEROUS GOODS SURVEY

Hello, my name is \_\_\_\_\_ of The LCP, a national survey research firm. We're calling today to do a short research interview about the types of freight trains that move through Toronto. Would you mind taking 5 minutes to give us your opinion about the types of goods the trains carry?

Yes --- Thank You (CONTINUE) 1

No --- Terminate 2

1. As I have an age quota to fill could you please tell me your age? Would you be...

Less THAN 18 T (TERMINATE)

18-24 YEARS 1

25-34 2

35-44 3

45-54 4

55-64 5

65 AND OVER T

REFUSED R (TERMINATE)

2. As you probably know, the freight trains that move through Toronto carry many different kinds of goods. In most cases these goods pose little risk to people, but in other cases they do.

Do you think trains carrying dangerous goods should move through densely populated areas?

DO NOT READ LIST

Yes 1

No 2

Depends 3

3. Could you please tell me why you say that?

(PROBE DEEPLY)



4. Some people have suggested moving inner city, dangerous goods rail traffic into a protected corridor. A protected corridor means the railway line has a wide band of open land around it, plus other features to help protect against accidents with dangerous goods.

I'd now like to read you a number of statements about moving dangerous goods rail traffic. I'd like you to tell me how much you agree or disagree with each statement using a scale from 1 to 10. 1 means you disagree completely and 10 means you agree completely.

MAKE SURE RESPONDENT UNDERSTANDS SCALE

ROTATE FIRST TWO ITEMS

Dangerous goods rail traffic should be moved out of densely populated areas into a protected corridor away from the public.

1      2      3      4      5      6      7      8      9      10

Dangerous goods rail traffic should NOT be moved out of densely populated areas into a protected corridor away from the public.

1      2      3      4      5      6      7      8      9      10

-----

I would be willing to pay more taxes to have the dangerous goods rail traffic that runs through Toronto moved to a protected corridor.

1      2      3      4      5      6      7      8      9      10

6. Finally, for 1986, would you say that your total household income before taxes was...

BETWEEN \$20,000    1      BETWEEN \$20,000    4      OR ABOVE    7  
AND \$40,000

WAS IT.....                  WAS IT.....                  WAS IT.....

BETWEEN \$10,000    2      BETWEEN \$30,000    5      BELOW \$50,000    8  
OR  
ABOVE \$10,000    3      ABOVE \$30,000    6      OR  
ABOVE \$50,000    9

REFUSED                  R

Thank you for your time and co-operation.

RECORD SEX :    MALE                  1  
(DO NOT ASK)    FEMALE                  2







# KPMG Peat Marwick

## Management Consultants

Peat Marwick Consulting Group  
21st Floor, Tower B  
Place de Ville, 112 Kent Street

P.O. Box 2530, Postal Station D  
Ottawa, Ontario K1P 5W6

Telephone (613) 237-2120  
Telex 0533675  
Telefax (613) 237-6664

December 28, 1987

Dear Mr. Morrison:

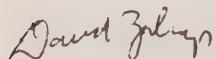
I have reviewed the EKOS Report on the Public Perception Survey. Overall, I find the report in error in a variety of technical aspects, and misleading in its analysis and interpretation. In this paper, I will briefly discuss:

- technical errors
- errors on validity of inference
- misleading statistical analysis.

If you have any questions on this, please do not hesitate to contact me.

Yours very truly,

PEAT MARWICK CONSULTING GROUP



David Zalinger  
Managing Partner

Encl.  
DZ:cd



Member Firm of  
Klynveld Peat Marwick Goerdeler



## COMMENTS ON THE EKOS REPORT

### INTRODUCTION

There are three variety of problems with this report. I will discuss them in three categories: technical errors; errors in validity of inference; and misleading statistical analysis.

Technical errors are probably the least of the difficulties. They do, however, cast doubt on the statistical capabilities of the analysts. In particular, the consultants ignore the potential impact of the principal source of bias (non-response bias), misunderstand the difference between random sampling and their procedures (and how this impacts reliability and confidence) and use undefined words in the questionnaire.

There are major problems with the validity of the inferences made. There is reference to other studies and other external information (e.g., correlation between perceived accidents and media reports), but no evidence is cited. Value-laden terminology is used like "reform not revolution" and "hard-core, skeptical group" with no evidence brought to bear on the existence of such phantom groups. Misleading terms like "only" are used to mask what often appears sizeable results.

Finally, the actual analyses are very weak and often misleading. In most cases, differences of 9-10% are required for statistical significance, yet groups with much smaller differences are discussed as if small differences were important. There was no attempt to disentangle causal relationships. Correlations, for example, between knowledge and opinions seems to be taken as causally obvious, when a variety of factors, such as income, location of residence, etc. would give similar results and much more (or at least equally) plausible explanations.

I will describe some examples of the above in somewhat more detail.



## TECHNICAL ERRORS

Despite a fairly lengthy discussion of the statistical aspects of the survey, the report shows both carelessness and lack of understanding in their discussion of statistical issues. Specific examples include the following:

### Generalizability

The report indicates the survey sample as "fairly representative of the overall greater metropolitan area population". This is stated to be the case because the age and sex ratios of the sample are not far off the population's. This simple comparison is apparently thought to eliminate any other problems of misrepresentativeness. This includes representativeness on other variables, but also the discussion excludes the principal potential source of bias in a study like this -- non-response bias. Although response rates are discussed descriptively, there is no analysis of who these non-respondents are, and whether they may be different than those who responded on issues of interest (and not just on sex or age). A non-response rate of 26% can range from having no effect on the final results to completely invalidating every conclusion, depending on the pattern of this non-response. It should also be mentioned that when stating accuracy and confidence results, the results are stated as if there were no non-response, without any caveats at all.

### Sampling and Accuracy/Confidence Statements

The sampling procedure used is not a random sampling procedure. It is rather a variant of a two-step sampling method, where the primary sampling is basically stratified, and the second stage (selection of the individual within the house) is unclear. The important point of the sampling process is that it is not self-weighting and not equivalent statistically to a random sample of individuals within the Metropolitan Area. In particular, sample sizes are non-proportional to the population of the 5 communities, thus requiring weighting.

Unfortunately, the report ignores this fact when giving confidence levels for the greater metropolitan area. It is not likely to be " $\pm 1.86$  to  $\pm 3.10$  percent" with 95% confidence, because this assumes a simple random sample. We know Metro Toronto is greatly under-represented in the sample, and this would have to be considered in the confidence levels. I do not have actual population figures, but suppose we had the following:



	<b>Population</b>	<b>Sample</b>	<b>Survey Result</b>
Durham	300,000	200	10%
Hamilton	400,000	200	5%
Peel	300,000	200	90%
York	500,000	200	95%
Metro Toronto	2,000,000	200	50%

In other words, the population range from 300,000 in Durham and Peel to 2,000,000 in Toronto, and the survey results on a given question range from 5% to 95%. The EKOS methodology would have correctly calculated the overall percentage as:

$$51.3\% = \frac{10\% (300,000) + 5\% (400,000) + 90\% (300,000) + 95\% (500,000) + 50\% (2,000,000)}{3,500,000}$$

The EKOS confidence interval for this, assuming a simple random sample result, would have been  $\pm 3.09\%$ . However, this is incorrect. The true confidence interval, incorporating the sampling weights, is  $\pm 4.16\%$ . Thus the error is off by over one-third. Considering no attempt is made to incorporate error due to non-response bias, we can see that the report clearly exaggerates the accuracy of the overall survey results.

The questionnaire also make the cardinal sin of questionnaire design in using undefined terminology:

- "all the time" as a scale point for how often accidents occur
- "a number of important changes"
- "significantly dependent upon the use of dangerous goods"
- "significantly fewer people".

There are also ambiguities within a question. For example, to say that if "the measures to reduce the risks from the transport of dangerous goods by rail are of top quality, I could live with the existing system" is internally contradictory. If such measures were being taken, we would have a different system.



## ERRORS IN VALIDITY OF INFERENCE

By errors in validity of inference, I mean that the conclusions reached by the consultants exceed the scope of the study itself. In other words, statistical results from the survey are stated, and conclusions then drawn, but the conclusions are well beyond the evidence of the survey itself. This is seen throughout the report. Several examples are:

- "residents of Toronto were less concerned with risks of rail transport of dangerous goods than citizens in other cities." I have no idea whether this is true or not, but it obviously does not fall from the study itself. No evidence is cited.
- "there is a reasonable correlation between perceived numbers of accidents and the number reported in the media." As well as having no idea what reasonable correlation means, I have seen no evidence of this correlation anywhere (including the EKOS report).
- In talking about the 34% who say they have trouble believing anyone who tells them about safety (p.40), the report says "this group appears to contain a fairly hard-core skeptical group who are opposed to the transport of dangerous goods and consistently account for between 15 and 30 percent of the extreme views noted throughout this study." This so-called conclusion manages to quickly and succinctly do all the wrong things in a study of this sort:
  - bring in terminology of value-laden words having nothing to do per se with the results, i.e., "fairly hard-core skeptical" and "extreme views"
  - make a statement without proof which could be proved from the study; the 15-30% supposedly reappearing could be analyzed and confirmed in the study. By being stated without evidence, it makes one wonder whether it was checked and whether it is true.
- "only about one quarter (27 percent) of the respondents said that railway companies have traditionally been irresponsible in their attention to public safety." I find the "only" an incredible word to put in. I find 27% having such a strong feeling as irresponsibility an incredibly large number.
- "the public is looking for reform not revolution." (p.49). This is an amazing example of the use of value-laden words that are totally irrelevant.



- "approximately one third (34%) of the respondents related that as a matter of principle it is fair to shift the risks of an accident involving the rail transport of dangerous goods to a new group of people of significantly fewer people." Given only 56% in fact disagree, I find the 34% a powerful number for what is a rather strong opinion.

## STATISTICAL ANALYSIS

There are a variety of examples of poor statistical reasoning. Consider the following:

- On p.65, there is an attempt to attribute differences regarding views on minimizing risk regardless of costs to knowledge.
- There are likely a variety of factors related to knowledge, e.g., neighborhood, income, etc. Since higher-income people are more likely to have to pay (from income taxes), and are less likely to be in neighborhoods directly adjacent to railway tracks, these may be other good reasons for these differences on attitudes having nothing to do with knowledge per se. These alternative explanations could have been examined. It was poor professional work not to check them.
- The analysis regarding those who feel it is fair to shift risks from more to less dense areas is remarkably simplistic. Clearly (and as seen in the next question), these answers will be completely coloured by whether the movement involves them, and in what way. The figures can only have meaning if we consider whether the individual is currently in a risky area, thinks he might be if such a move were made, etc.
- "Levels of concern were highest in downtown Metro area." The example was used on p.32 talking about 87% for Toronto, 79% for York, and 73% for Peel. Although the statement is true for the sample, it is not true using an accepted significance level of .05 for the percentages, i.e., the small differences are likely due to chance.

## SUMMARY OF CONCLUSIONS

The summary of conclusions is an important part of any study. I offer the following comments on the EKOS Summary (p.76-77):

- they say their conclusions are drawn on "our broader national study of risk perceptions." This is a way of saying anything without proof, because no evidence is brought to bear from other sources.



Given the data or statistical evidence shown, i.e., only survey information, all conclusions should arise from this survey only.

- to say there is "no mandate to engage in a radical new system" is a meaningless conclusion. No scenarios of "radical new systems" and what that involves were even posed in the survey itself. Strong feelings (negative) about the current system were evident in the responses.
- "shifting risks to lower population areas does not appear viable." As indicated before, the conclusions are unclear because the analysis is simplistic. As well as having to look at who answered the question and where they resided vis-à-vis a possible move, I assume the actual density could vary greatly, i.e., strongly protected corridors might expose a very small number of residents. Certainly the difference in true densities of those exposed would need to be examined, not just the one sample comparison used in the study.
- I saw no mandate to spend tax dollars, i.e., it was never asked. Dollars could come from higher prices on transported goods, as an example.
- The hard-core negative group. There is no evidence of its existence. If it exists, there is no evidence that it is unreachable.

## MY OVERALL CONCLUSIONS

Overall, I find the analysis and report in need of a great deal of work. Technical analyses should be done correctly. The report must be re-written to amend misleading interpretations which do not follow from the data. Certain questions are so poorly worded that they should be eliminated from the analyses. Further analysis of these data are required to support many of the conclusions. The report does not appear as an accurate, professional and objective study as it is now written.

Ottawa December 28 1987









HOUSE OF COMMONS  
CHAMBRE DES COMMUNES  
CANADA  
KIA 0A6

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House of Commons  
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CONSTITUENCY OFFICE  
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Toronto M4Y 1G7  
(416) 929-9845

HON. DAVID CROMBIE, P.C., M.P.  
Toronto - Rosedale

O T T A W A  
August 21, 1987

Mr. Harry Behrend  
M-TRAC  
181 University Avenue  
Suite 1202  
Toronto, Ontario  
M5H 3M7

Dear Harry,

Thank you for sending me a copy of Harold Morrison's letter to the Chairman of the Toronto Area Dangerous Goods Rail Task Force regarding the speed of trains carrying dangerous goods.

I agree that the speed of trains carrying dangerous goods across Metro should be held at 25 miles per hour and I appreciate you keeping me informed of your efforts in this area.

Thanks again for getting in touch. Take care.

Sincerely,

David Crombie, P.C., M.P.  
Rosedale



RIDING OFFICE  
2163 Lawrence Ave. East,  
Scarborough, Ontario  
M1P 2P5  
416-751-7400



HOUSE OF COMMONS  
CHAMBRE DES COMMUNES  
CANADA

OTTAWA OFFICE  
Confederation Building,  
House of Commons,  
Ottawa, Canada,  
K1A 0A6  
613-992-6418

Pauline Browes, M.P.  
Scarborough Centre

OTTAWA, K1A 0A6  
October 14, 1987

Rose A. Dyson,  
Director,  
Metro Toronto Residents' Action Committee,  
181 University Avenue,  
Suite 1202,  
TORONTO, Ontario,  
M5H 3M7

Dear Ms. Dyson:

Thank you for sending me a copy of M-TRAC's resolution concerning the maximum speed for trains carrying dangerous goods.

I appreciate receiving your concerns and I am confident the Minister of Transport, the Honourable John Crosbie will give your resolution careful attention. Reducing the speed of trains carrying dangerous goods is crucial for the safety of all Metro residents and I commend you for pursuing this initiative.

Thank you again for taking the time to write.

Sincerely,

Pauline Browes



# M-TRAC

*for rail safety*

METRO TORONTO RESIDENTS' ACTION COMMITTEE

181 University Avenue, Suite 1202, Toronto, Ontario, M5H 3M7      Telex 065-24481      Phone (416) 365-0301

September 28, 1987

The Honourable J.C. Crosbie,  
Minister of Transport,  
Transport Canada Building,  
Place de Ville,  
330 Sparks Street,  
OTTAWA, Ontario  
K1A 0N5

Dear Mr. Minister:

This is to advise you that M-TRAC at its annual meeting held on September 22, 1987, unanimously adopted the following resolution, moved by Dr. Jeff Norris and seconded by Mr. Keith Weaver.

THAT THE FEDERAL MINISTER OF TRANSPORT:

1. Be requested to lower the maximum speed of dangerous goods trains including those with residue tank cars in the high density Metro area to 25 miles per hour;
2. Ensure that the maximum speed be enforced by law or regulation and that these speeds be reliably monitored and;
3. Accelerate the process of relocating the North Toronto Subdivision.

Yours truly,



Rose A. Dyson,  
Director

cc Residents and Ratepayers Association  
Mayors and Councils of Metro Toronto  
Members of Provincial Cabinet  
Member of Federal Cabinet





HOUSE OF COMMONS  
CHAMBRE DES COMMUNES  
CANADA  
K1A 0A6

HON. BARBARA McDougall, P.C.  
M.P. - St. Paul's  
Minister of State (Privatization) and  
Ministre Responsable  
for the Status of Women

HON. BARBARA McDougall, C.P.  
Députée de St. Paul's  
Ministre d'État (Privatisation) et  
ministre responsable  
de la Condition féminine

O T T A W A

OCT 19 1987

Mr. Harry Behrend  
M-TRAC  
181 University Avenue  
Suite 1202  
Toronto, Ontario  
M5H 3M7

Dear Harry:

Thank you for sending me the recent issue of M-TRAC News. The publication is very informative.

As you know, I'm in support of holding the speed of trains carrying dangerous goods across Metro Toronto to 25 m.p.h.

I appreciate your efforts in keeping me up to date on this issue. Please stay in touch.

Yours sincerely,

  
Barbara McDougall





HOUSE OF COMMONS  
CANADA

ALAN REDWAY, M.P.  
YORK EAST

ROOM 125 CONFEDERATION  
HOUSE OF COMMONS  
OTTAWA, ONTARIO  
K1A 0A6  
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843 O'CONNOR DRIVE  
TORONTO, ONTARIO  
M4B 2S7  
(416) 759-1474

October 20, 1987

The Honourable John Crosbie, P.C., M.P.  
Minister of Transport  
Room 418-N  
House of Commons  
Ottawa, Ontario  
K1A 0A6

Dear John,

I am enclosing herewith, for your ready reference, a copy of a letter addressed to yourself from Rose Dyson, a Director of M-TRAC, dated September 28, 1987.

The resolutions of M-TRAC at their annual meeting underscore my request for a maximum speed limit on trains carrying dangerous goods anywhere through Metropolitan Toronto. In this regard, you will recall the accident in my Constituency this past July. Fortunately, the car carrying dangerous goods did not derail but many others did.

I appreciate very much the fact that you have written to the CPR in this regard, but I hope you will follow the matter up once again.

I look forward to hearing from you concerning this matter.

Yours sincerely,

Alan Redway, M.P.

c.c. Ms. Rose Dyson, M-TRAC

ma



Office of  
the Minister of Transport

Cabinet du  
ministre des Transports

October 20, 1987

Mr. Alan Redway, M.P.  
Member for York East  
Room 903, Confederation Building  
House of Commons  
Ottawa, K1A 0A6

Dear Mr. Redway:

Thank you for your letter of September 9 concerning the extension of the 25 mile per hour speed limit on CP rail lines throughout the metropolitan Toronto area.

Enclosed is a copy of a letter from the Chairman & CEO of Canadian Pacific in response to the Minister's letter of September 2nd, a copy of which was sent to you.

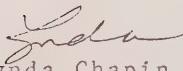
You will note from Mr. Scott's letter that CP is committed to the safe transportation of dangerous goods. However CP does not consider that it can accede to your request for an extension of the 25 mile per hour limit.

We spoke about the Task Force on Toronto Area Rail Transportation of Dangerous Goods. The existing voluntary speed restraint will remain in effect until it is completed & recommendations are made. The area under examination includes the subdivision of concern to you.

I apologize for the delay in responding to your letter. Please rest assured, Mr. Redway, that the transportation of dangerous substances remains a high priority for the Minister.

Thank you for writing in this regard.

Yours sincerely,

  
Lynda Chapin  
Legislative Assistant  
Enclosure



**CP Rail**

September 28, 1987



OCT 13 8 56 AM '87



RECEIVED  
MINISTER OF TRANSPORT

The Honourable John C. Crosbie, P.C., M.P.  
Minister of Transport  
Transport Canada Building  
Place de Ville  
330 Sparks Street  
Ottawa, Ontario  
K1A 0N5

Dear Mr. Crosbie:

I am in receipt of your letter dated September 2, 1987, with regard to a request from Mr. Alan Redway, M.P., York East, for a voluntary 25 mile per hour speed limit on rail freight traffic throughout the metropolitan Toronto area.

Mr. B. A. Thacker replied to Mr. Redway's question in the House of Commons, as outlined in Hansard dated August 21, 1987, that the Federal Task Force on Toronto Area Rail Transportation of Dangerous Goods, chaired by Mr. Harold Gilbert, is studying the question of rail traffic in the metropolitan Toronto area. The task force is carrying out still its mandate and I look forward with great interest to receiving its final report and recommendations in the interest of developing a mutually acceptable solution for the continuing safe transportation of dangerous goods by rail in the Toronto area.

In May 1986, to alleviate a contentious issue and to facilitate the work of the Task Force, CP Rail voluntarily imposed a 25 mile per hour speed limit on trains handling special dangerous commodities and a 35 mile per hour speed limit on trains carrying dangerous commodities on our North Toronto Subdivision. All other general commodity traffic continued to operate within the existing 50 mile per hour speed limit.

This voluntary speed restraint was made, and accepted by the Task Force, on the understanding that it applied only to special dangerous and dangerous commodity traffic on CP Rail's North Toronto Subdivision and would continue in force for the life of the Task Force. When the Task Force completed its work the speed restriction would be reviewed, or withdrawn, consistent with the recommendations of the Task Force.



You are, of course, aware of CP Rail's dedication to improving its safety record which in 1986 was the best among North American railways. While we are continually attempting to reduce the number of personal injuries and derailments on CP Rail and hence further improve our level of safety, we must, in doing so, protect the viability of our operation as a railway as it relates to the level of on time service and dependability demanded by our customers.

While reduced speeds might reduce the severity of the effects of a derailment as compared to one that might occur at high speed, there is a point beyond which no beneficial relationship between reduced speed and increased safety can be established. Such we believe to be the case in Toronto.

Therefore, I am not prepared to accede to Mr. Redway's request to extend the present 25 mile per hour voluntary speed restriction beyond its present limits, pending the outcome of the deliberations of the Federal Task Force.

Sincerely,



I. B. Scott





HOUSE OF COMMONS

OTTAWA, CANADA

K1A 0A6

CHARLES CACCIA  
MP FOR DAVENPORT

TELEPHONE  
OTTAWA (613) 992-2576  
TORONTO (416) 654 8048

October 23, 1987

Hon John Crosbie  
Minister of Transport  
Room 418-N  
Centre Block

Dear Mr Crosbie;

With this letter I would like to express my strong support for the requests made by the Metro Toronto Residents' Action Committee (M-TRAC) to lower the maximum speed of dangerous goods trains, including those with residue tank cars, in the high density Metro Toronto subdivision. I urge you to give M-TRAC's proposals your favourable consideration. The same policy should apply to any urban centre in Canada.

Please let me know your decision. I thank you.

Sincerely,

*Charles Caccia*





HOUSE OF COMMONS  
OTTAWA, CANADA  
K1A 0A6

THE HON. JOHN BOSLEY, P.C., M.P.  
DON VALLEY WEST

TELEPHONE  
OTTAWA (613) 996-3085  
TORONTO (416) 482-8072

OTTAWA, K1A 0A6  
November 18th, 1987

Mr. Harry Behrend  
M-TRAC  
Suite 1802  
181 University Avenue  
Toronto, Ontario  
M5H 3M7

Dear Mr. Behrend:

Thank you for your recent telephone call to my office advising me of the Task Force's council briefings and drop-in centres scheduled for December.

I fully endorse to the proposal for a reduction of the speed limit to 25 miles per hour for trains carrying dangerous goods through populated areas.

I appreciate your keeping me informed on this issue.

Yours sincerely,

John Bosley







**Department of Roads and Traffic**  
30th Floor, The Simpson Tower  
401 Bay Street  
Toronto, Ontario Canada M5H 2Y4  
Telephone: (416) 947-8300

S. Cass, B.A.Sc., M.A.Sc., P.Eng  
Commissioner of Roads and Traffic



January 9, 1984.

Dear Mr. Morrison:

Re: Speed of Trains

You had recently asked me my opinion with respect to a proposal to have the speed of trains reduced from 35 mph to 25 mph and, in particular, any safety considerations that would be involved and time loss.

At the Show Cause Hearing on Railway Safety conducted by the Railway Transport Committee in Ottawa in 1981, I had stated that, in my opinion, it was unlikely that the number of accidents would materially be affected by the variation in speed in the range we were discussing; however, I also stated that I felt that the extent of damage caused by an accident at higher speed would be considerably greater than that which would occur at lower speed. Since that time I have examined the evidence that had been submitted at the Hearing by various organizations which tended to confirm the statement that I had made.

In particular, I have examined the presentation made by CONSAD, based on United States Federal Railway Administration data, which was recorded as Table 13-1 in the Staff Summary of Evidence, which I am reproducing herein. This showed that, on an average, the damage per accident in the United States at 25 mph was approximately \$69,000.00 as compared to the damage at 35 mph, this being \$96,000.00, a difference of 39% more for the higher speed accident.

The relationship that is shown here is very similar to those relationships which I have observed with road traffic.



TABLE 13-1

SPEED AND ACCIDENT DAMAGE\*

<u>Speed</u>	Average Damage per Accident (\$000)
Unknown	28
1 - 10	19
11 - 20	35
21 - 30	69
31 - 40	96
41 - 50	142
51 - 60	117
61 - 70	350
71 - 80	354
81 - 90	351

\* CONRAD presentation based on United States  
Federal Railway Administration Data.

Extracted from Staff Summary of Evidence  
Show Cause Hearing on Railway Safety  
OTTAWA 1981



January 9, 1984

Mr. Morrison - 2

In regard to the lost time resulting from a reduction in the speed of trains from 35 to 25 mph, I would point out that the distance between the Lambton Station and the Agincourt Station is approximately 13 miles and, therefore, the additional time that would be required by the train at the lower speed would be approximately nine minutes.

I trust that the foregoing information will be of assistance to you.

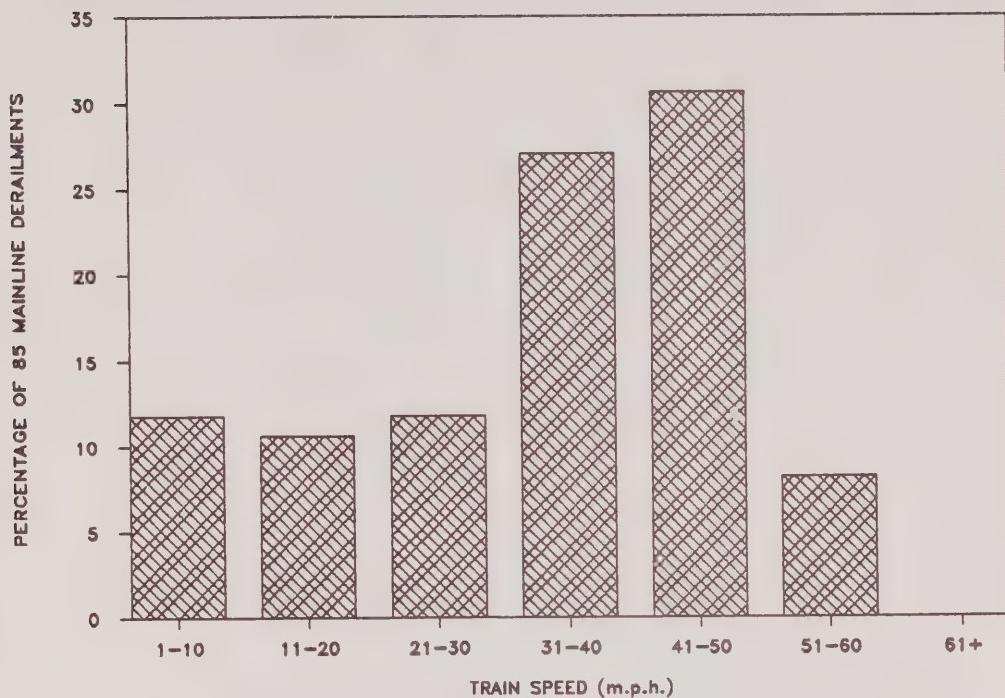
Yours very truly,



ET  
Enc.

S. Cass  
Commissioner of Roads and Traffic.





## EXHIBIT 2

### RELATIONSHIP BETWEEN MAINLINE DERAILMENTS AND TRAIN SPEED

SOURCE: ECOLOGY AND ENVIRONMENT INC.  
BASED ON 1977 HAZMAT DATA

NOTE: BASED ON 85 DERAILMENTS







STATISTICAL TRENDS IN RAILROAD HAZARDOUS  
MATERIALS TRANSPORTATION SAFETY  
1978 TO 1986

Aviva E. Harvey  
Peter C. Conlon  
and  
Theodore S. Glickman

Publication R-640

September 1987

Prepared for the  
Environmental and Hazardous Material Studies Division  
Research and Test Department  
Association of American Railroads  
Washington, D.C.



<b>1. REPORT NO.</b> R - 640	<b>2. REPORT DATE</b> September 1987	<b>3. PERIOD COVERED</b> 1978 - 1986
<b>4. TITLE AND SUBTITLE</b> Statiscal Trends in Railroad Hazardous Materials Transportation Safety		
<b>5. AUTHOR(S)</b> A. E. Harvey, P. C. Conlon, T. S. Glickman		
<b>6. PERFORMING ORGANIZATION NAME AND ADDRESS</b> Association of American Railroads Research and Test Department 50 F Street, N.W. Washington, D.C. 20001	<b>7. TYPE OF REPORT</b> Research	
<b>8. SPONSORING AGENCY NAME AND ADDRESS</b> Association of American Railroads Research and Test Department 50 F Street, N.W. Washington, D.C. 20001	<b>9. NO. OF PAGES</b>	
	<b>10. NO. OF REFERENCES</b>	
<b>12. SUPPLEMENTARY NOTES</b> Environmental and Hazardous Materials Studies Division Research Project Number E-726		
<b>13. ABSTRACT</b> <p>Railroad hazardous materials statistics reported to agencies of the U.S. Department of Transportation and the Interstate Commerce Commission between 1978 and 1986 were analyzed. Trends in the volume of hazardous materials moved, train accidents, and hazardous materials releases were established. Train accident trends were examined in detail. Factors discussed include accident type, cause, speed, and tank car involvement. Causes of releases, safety records of tank car types and commodities were reviewed. The severity of releases was examined in terms of quantity released, injuries, and fatalities. Comparisons were made between accident records available from the Federal Railroad Administration that report hazardous materials releases and similar records obtained from the Office of Hazardous Materials Transportation.</p>		
<b>14. SUBJECT TERMS</b> Hazardous Materials, Tank Cars, Railroad Accidents, Incidents	<b>15. AVAILABILITY STATEMENT</b> Office of the Asst. Vice President Chicago Technical Center - AAR 3140 S. Federal Street Chicago, Illinois 60616	



**Figure 2.7**

**MAINLINE RELEASE DERAILMENTS BY TRACK CLASS**  
**1978-1986**

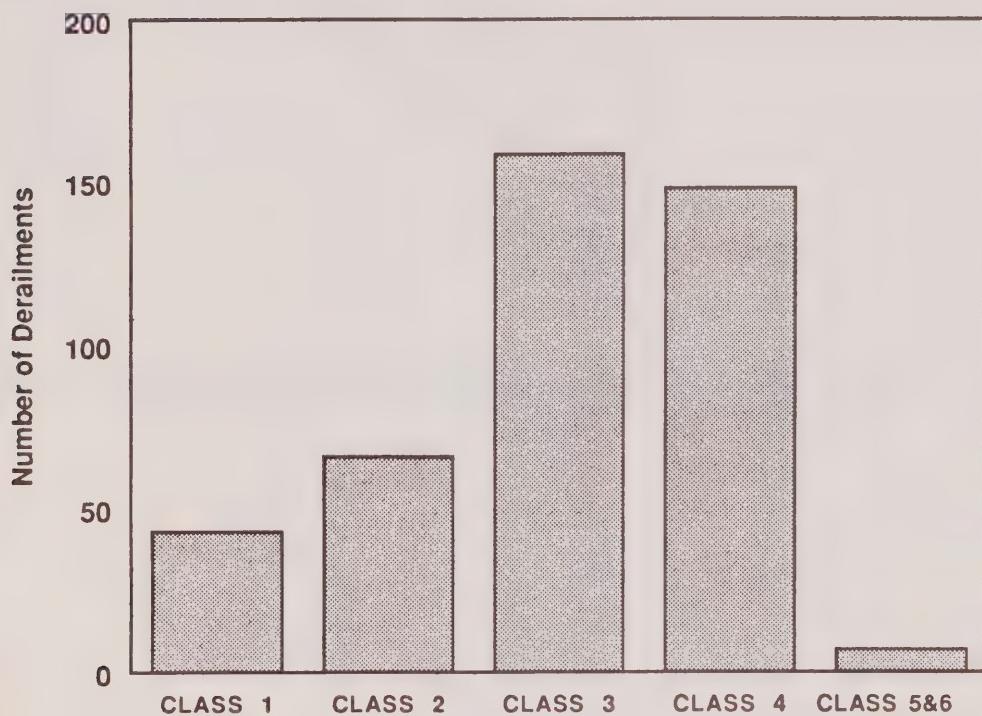




Table 2.3

**MAINLINE RELEASE DERAILMENTS  
BY TRACK CLASS AND SPEED  
1978-1986**

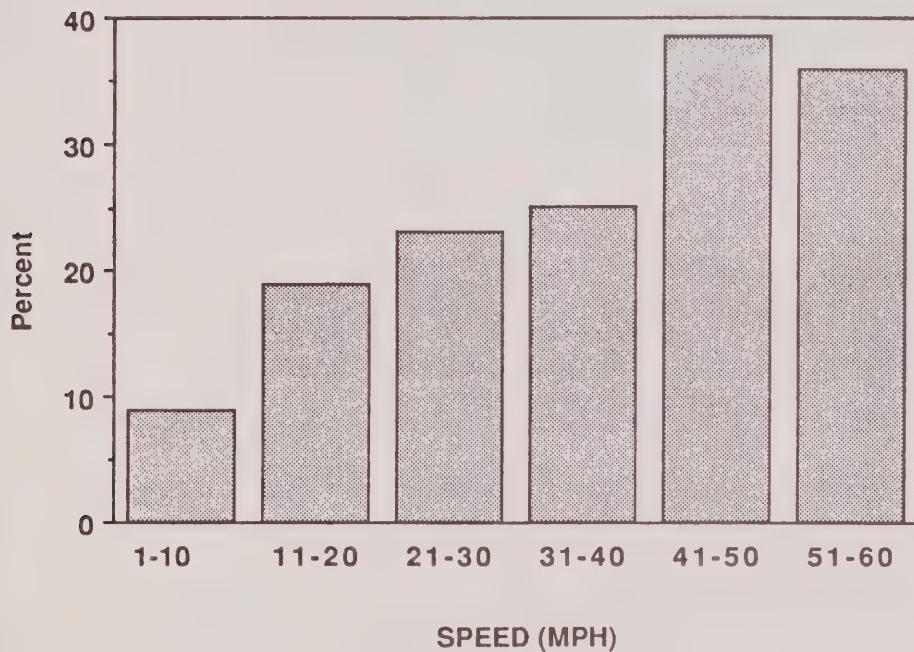
Speed	Track Class					Total	Cumulative Percentage
	1	2	3	4	5 & 6		
1-5mph	5	2	2	3		12	3
6-10mph	25	7	8	5		45	14
11-15mph	2	7	6	3		18	18
16-20mph	4	19	15	3		41	28
21-25mph	1	19	24	7		51	40
26-30mph	2	9	35	9		55	53
31-35mph	1		19	13		33	61
36-40mph	1		30	21	3	55	74
41-45mph	1	1	9	28		39	83
46-50mph	1		7	34		42	93
51-55mph			1	13		14	96
56-60mph				8	3	12	99
>60mph		2		1	1	4	100
<b>TOTAL</b>	<b>43</b>	<b>66</b>	<b>157</b>	<b>148</b>	<b>7</b>	<b>421</b>	



Figure 2.8

**PERCENTAGE OF CARS DAMAGED OR DERAILED  
THAT RELEASED HAZARDOUS MATERIALS  
IN MAINLINE DERAILMENTS BY SPEED**

1978-1986









FRANK B. SILVESTRO  
Vice President

Director, Hazardous Materials  
Analysis Group

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E & E vice president Frank B. Silvestro directs the firm's Hazardous Materials Analysis Group. He has 20 years of working experience in applying systems analysis to the investigation of environmental effects and has developed computer models for environmental problems including vegetation vigor and damage, transportation hazards, air and water pollutant dispersion, thermal plume and LNG vapor dispersion, and fires.

He has been in the forefront in developing techniques to identify, analyze, and mitigate the risks of handling hazardous materials. Considered an authority on risk analysis, he has performed such analyses for a number of gas and oil pipelines, eight LNG terminal and shipping projects, a naphtha synthetic fuel plant, an LPG terminal and shipping project, and the rail movement of LPG. He has given expert testimony concerning hazardous and toxic materials before the Federal Energy Regulatory Commission, the National Energy Board of Canada, and the New York State Public Service Commission.



**DATA BASE**

**SANDIA RAILROAD STUDIES**

**AAR PHASE I RESULTS**

**VARIOUS FRA AND DOT REPORTS**

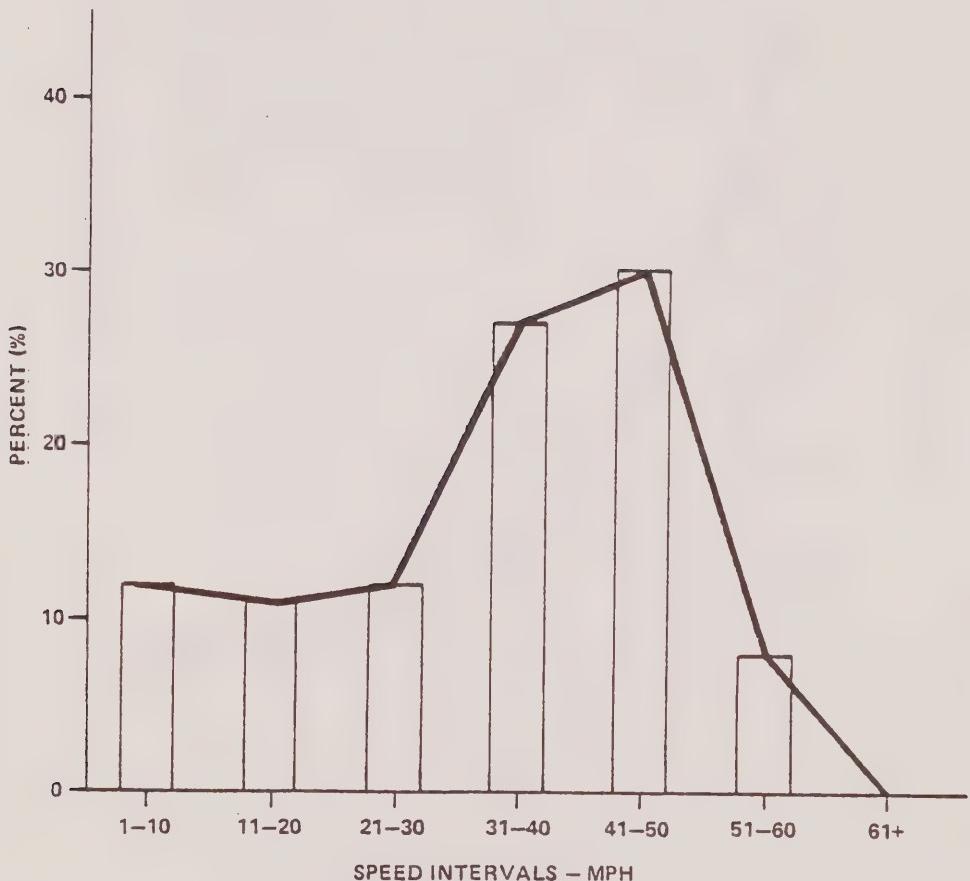
**MTB ACCIDENT RECORDS (1971 - 77)**

**FRA TRAIN ACCIDENT/INCIDENT TAPE (1977)  
(10,000 + ACCIDENTS/INCIDENTS)**



% OF MAINLINE DERAILMENTS  
VS SPEED ON TRACK  
CLASS 4  
(1977 HAZMAT DATA)

DATA: 85 DERAILMENTS





SEVERITY:  
RELEASES/DERAILMENT  
—MAINLINE—

TOTAL CARS: 555  
TOTAL RELEASES: 116

